

WHAT IS CLAIMED IS:

1. A method comprising:
applying a voltage having a voltage value to pixels in a spatial light modulator (SLM) to move the pixels;
reflecting light from the moved pixels;
passing the reflected light through an apodized pupil in an optical system;
capturing an image from the light after it passes through the apodized pupil;
correlating the image and the voltage value to generate a result signal; and
calibrating the pixels using the result signal.
2. The method of claim 1, further comprising individually resolving each of the pixels using the apodized pupil.
3. The method of claim 1, further comprising using a charge coupled device (CCD) array to perform the measuring step.
4. The method of claim 3, wherein the image of each of the pixels is captured using one cell in the CCD array.
5. The method of claim 3, wherein the image of each of the pixels is captured using more than one cell in the CCD array.
6. The method of claim 1, further comprising:
tilting the pixel through a plurality of desired angles; and
performing the capturing step for each of the desired angles.

7. The method of claim 1, further comprising:
tilting the pixel through a set of angles;
performed the capturing step at each angle in the set of angles;
and

using interpolation to determine a voltage value that moves the
pixel to an angle outside the set of angles.

8. The method of claim 1, further comprising forming the
apodized pupil using a apodization pattern that results in strong sensitivity of a
resolved form of the image to the tilt of the pixels, while the image of each of
the pixels is substantially well resolved.

9. The method of claim 1, further comprising forming the
apodized pupil using one of an annular and a semi-circular pattern blocking a
portion of a zero order lobe of a pixel diffraction pattern.

10. The method of claim 1, further comprising forming the
apodized pupil using one of a semi-plane, a shearing grating, and an algorithm
derived apodization pattern, such that variations are present in at least one of
transmittance and phase.

11. The method of claim 1, further comprising using projection
optics of a lithography tool as the optical system.

12. A system comprising:
 - means for applying a voltage having a voltage value to pixels in a spatial light modulator (SLM) to move the pixels;
 - means for apodizing a pupil in an optical system;
 - means for capturing an image from light that has reflected off the SLM and passed through the apodizing means;
 - means for correlating the image and the voltage value to generate a result signal; and
 - means for calibrating the pixels using the result signal.
13. The system of claim 12, wherein the capturing means comprises a charge coupled device (CCD) array.
14. The system of claim 13, wherein an image of each of the pixels is measured using one cell in the CCD array.
15. The system of claim 13, wherein an image of each of the pixels is measured using more than one cell in the CCD array.
16. The system of claim 12, wherein the apodizing means comprises a apodization pattern that results in strong sensitivity of a resolved form of the image to the tilt of the pixels, while the image of each of the pixels is substantially well resolved.
17. The system of claim 12, wherein the apodizing means comprises one of an annular and a semi-circular pattern blocking a portion of a zero order lobe of a pixel diffraction pattern.

18. The system of claim 12, wherein the apodizing means comprises one of a semi-plane, a shearing grating, and an algorithm derived apodization pattern, such that variations are present in at least one of transmittance and phase.

19. The system of claim 12, wherein:
the voltage applying means moves each of the pixels through a plurality of desired angles; and
the correlating means determines a result signal for each of the desired angles.

20. The system of claim 12, wherein:
the voltage applying means moves each of the pixels through a set of angles;
the capturing means captures an images at each angle in the set of angles; and
the correlating means uses interpolation to determines a result signal for angles falling outside the set of angles.

21. The system of claim 12, wherein the optical system comprises projection optics of a lithography tool.